

“My girlfriend expressed suicidal thoughts and refuses to guarantee me she'll tell me when she needs help. What can I do?”

“Today I ran my first half marathon!!”

“it comes and goes but it never really leaves”

“Does anyone know how to break unhealthy eating habits?”

“I want to kill myself. I don't know that I can be trusted to be alone without hurting myself. I also don't have anyone to call when I feel this way. Should I go to the hospital? I've thought about it but am afraid of what might happen.”

“Have you talked to a mentor or counselor? Have you explored where these feelings come from, what triggers them?”

“That is something! A big step. It takes courage to do that and it took courage to come here. I believe in you.”

“You are thinking this through very clearly and speaking honestly.
That is what moves us forward”

“How are you feeling? I know it's scary.”

“I have made 6 suicide attempts, trust me what it does to your family is not worth it”

“That sounds frustrating. The hotline might be a good place to start, just to talk through how you're feeling and maybe some coping mechanisms...the fact that you're asking for advice is a huge step.”

Over 50,000 data points: What Can Real-Time Student Mental Health Data Say About Your Campus

University of Minnesota, School of Social Work,
Department of Family Social Science

and

Marbles iOS & android apps



Adam Moen
moenx200@umn.edu

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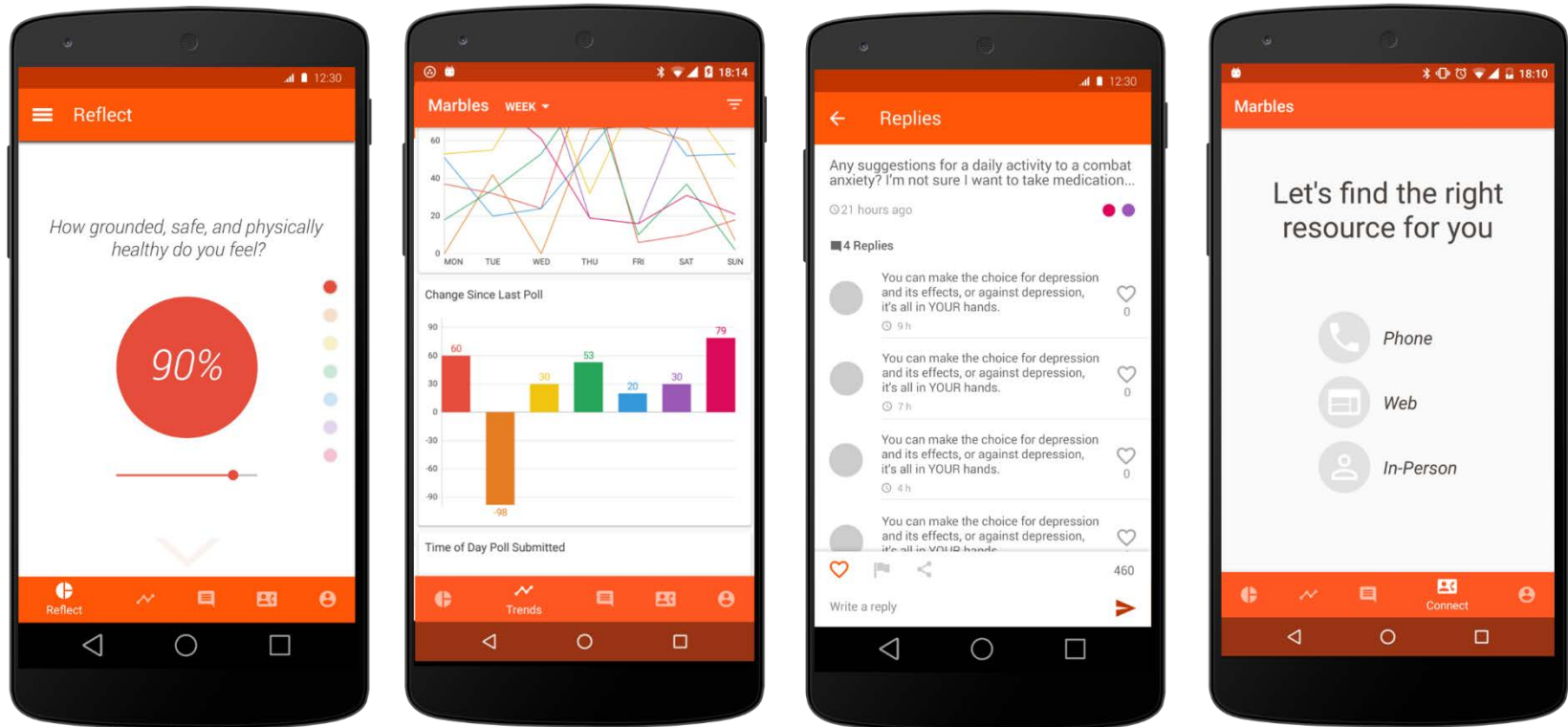
Agenda

- Executive summary
- Screenshots
- Background
- Examine study:
 - Background
 - Timeline
 - Current Design
 - Preliminary Results
- Explore Marbles utilization statistics
 - Demographics
 - Activity
- Data Visualization
- Next steps

Executive Summary

Preliminary results from the study *Understanding the Impact of Marbles on Undergraduate Self-Reported Depression and Anxiety* are inconclusive about the impact of the intervention Marbles iOS and android apps on student self-reported depression and anxiety. However, there is great promise in the intervention as a low-cost mental and emotional health support option for campuses and students based on user behavior, feedback, and in-app utilization.

Reflect, Trends, Posts and Connect screens help users build self-awareness, find support, resources, and community.



Background

This research began out of Adam's personal journey with mental health struggles.

- Struggled with depression, substance abuse, and suicidal ideation as an undergraduate
- Got engaged with student groups on campus to advocate for student mental health
- Spoke at TEDxUMN 2013 - <https://www.youtube.com/watch?v=uwBHVzAvJqY>
- Began research with Professor Tai Mendenhall in 2014 (pictured right)
 - Completed one study that influenced the design of Marbles in 2014
 - Completed a pilot study testing v1.0 in early 2016

2016 Pilot Study Results:

- Over 3 months using a before and after assessment of anxiety and depression using the GAD-7 and PHQ-9 as measures, we observed undergraduates that had access to Marbles reported
 - A decrease in anxiety at the .001 level
 - A decrease of depression significant at the .01 level



Marbles Analytics Platform

Marbles iOS and android apps offers users a free and anonymous tool to find support, explore resources, and build self-awareness.

■ Launched Version 1.0 in October 2015

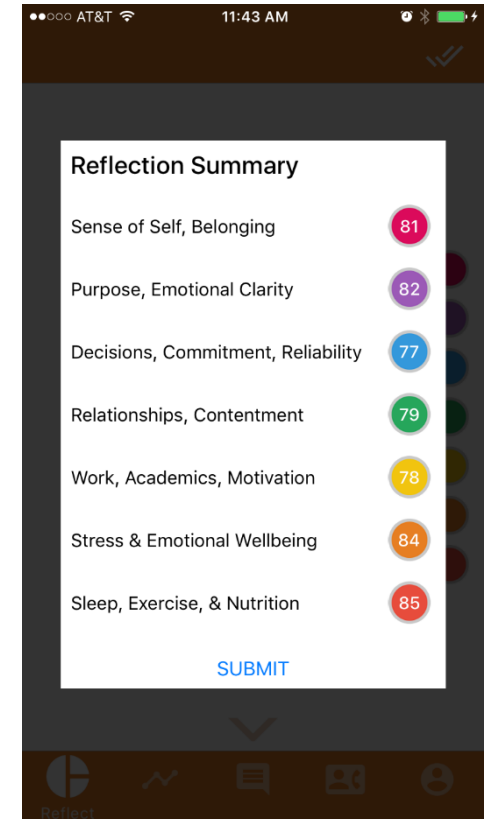
- Released v2.0 October 2016
- Released v2.1 in early April
- Releasing v2.1.1 in late April

■ Features

- Reflect - https://www.youtube.com/watch?v=jQ_HtvCmLgc
- Connect - <https://www.youtube.com/watch?v=HmtzokTjCDs>
- Posts - <https://www.youtube.com/watch?v=1RkjOXCIFmI>

■ Current Utilization Statistics:

- Over 50,000 unique data points gathered from the Reflection complete with user demographics on about 80% of the population (college, year of enrollment, age, gender, race, sexual orientation)
- +1500 users
- Over 1,000 conversations Posted, +4,000 replies for over 5,000 total posts
- 3,100+ minutes spent with the app open in March alone
- Wide range of discussions occurring in the Posts



Tagcloud of 738 Posts Shared on Marbles

Mental and emotional words and statements are most commonly expressed by users.

alone anxiety anyone around bad best better change com
depression else everyone **feel** friends getting
going happen hard hate **help** http illness keep lately **life**
love mental night **people** person **really** relationship school
sleep someone **something** sometimes started stress struggling talk
things **think** thoughts tips today week **work** www years

Tagcloud of 2000+ Replies Shared on Marbles

Encouraging and supportive statements, similar to motivational interviewing-style statements appear on Marbles.

alone anxiety anyone anything around bad better care change depression else family
feel friends getting give going happened hard **help** hope
keep learn life lot love maybe mind ok pain **people** person
really school sharing someone **something** sometimes sorry
sounds start **talk** thank things **think** thoughts tried
understand **work** yeah

Study: Current Design

We are studying whether or not having access to Marbles could impact undergraduate students self-reported depression and anxiety.

Study Title: *Understanding the Impact of Mobile Application Marbles on Undergraduate Self-Reported Depression and Anxiety*

- Two-group randomized semi-longitudinal study design
- Using the GAD-7 and PHQ-9, we are following 120 undergraduates for the next 9 months where half have access to the app and half do not.
 1. Recruited undergraduates across the University of Minnesota by presenting in classes and having professors send emails to students with links to participate
 2. Record basic demographic information and take introductory GAD-7 and PHQ-9
 3. Randomly assign survey respondents to the experimental or control group
 4. Administer 5 more GAD-7 and PHQ-9 assessments through December 2017
 5. Assess the results

Study: Preliminary Results

We observe no statistically significant difference on self-reported depression and anxiety between the experimental and control groups.

P value and statistical significance:	Group	Non Marbles Anxiety One	Non Marbles Anxiety Two	P value and statistical significance:	Marbles Anxiety One	Marble Anxiety Two
Control	Mean	13	12.26	Experimental	14.38	14.61
The two-tailed P value equals 0.3392	SD	4.86	4.25	The two-tailed P value equals 0.8653	5.01	5.02
standard error of difference = 0.774	SEM	0.53	0.54	standard error of difference = 1.371	0.89	1.05
	N	83	62		32	23
	Group	Non Marbles Depression One	Non Marble Depression 2		Marbles Depression One	Marbles Depression Two
The two-tailed P value equals 0.8895	Mean	14.7	14.82	The two-tailed P value equals 0.8826	17.41	17.65
standard error of difference = 0.889	SD	5.14	5.5	standard error of difference = 1.658	6.43	5.52
	SEM	0.56	0.7		1.14	1.15
	N	83	62		32	23

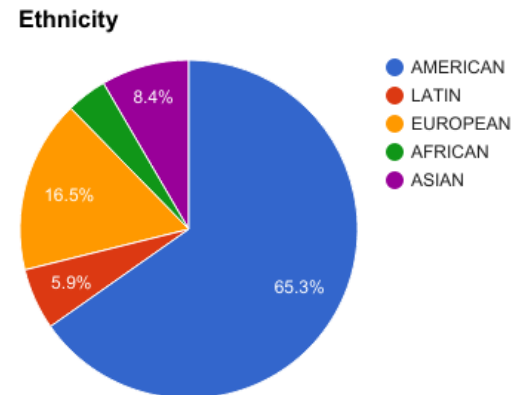
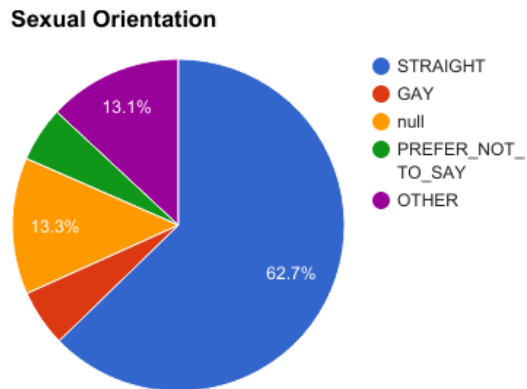
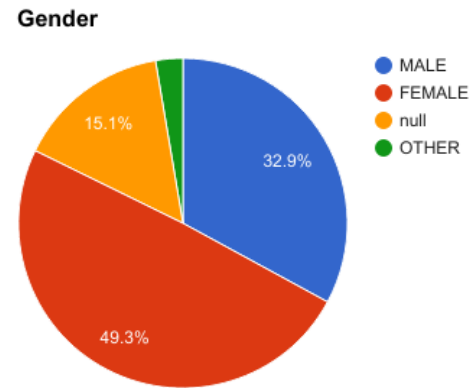
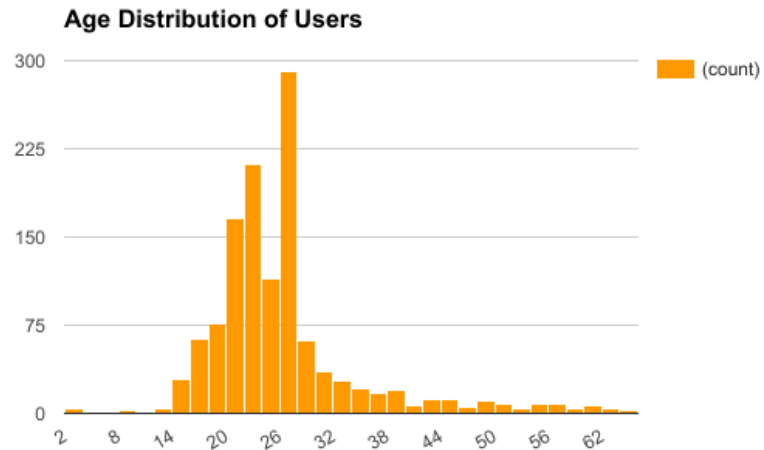
■ Next Steps:

- Continue data collection efforts until December 2017
- Analyze results using more advanced statistical methods
- Explore ways to reduce attrition and get more participants from the experimental group to download the app

Marbles Utilization Metrics

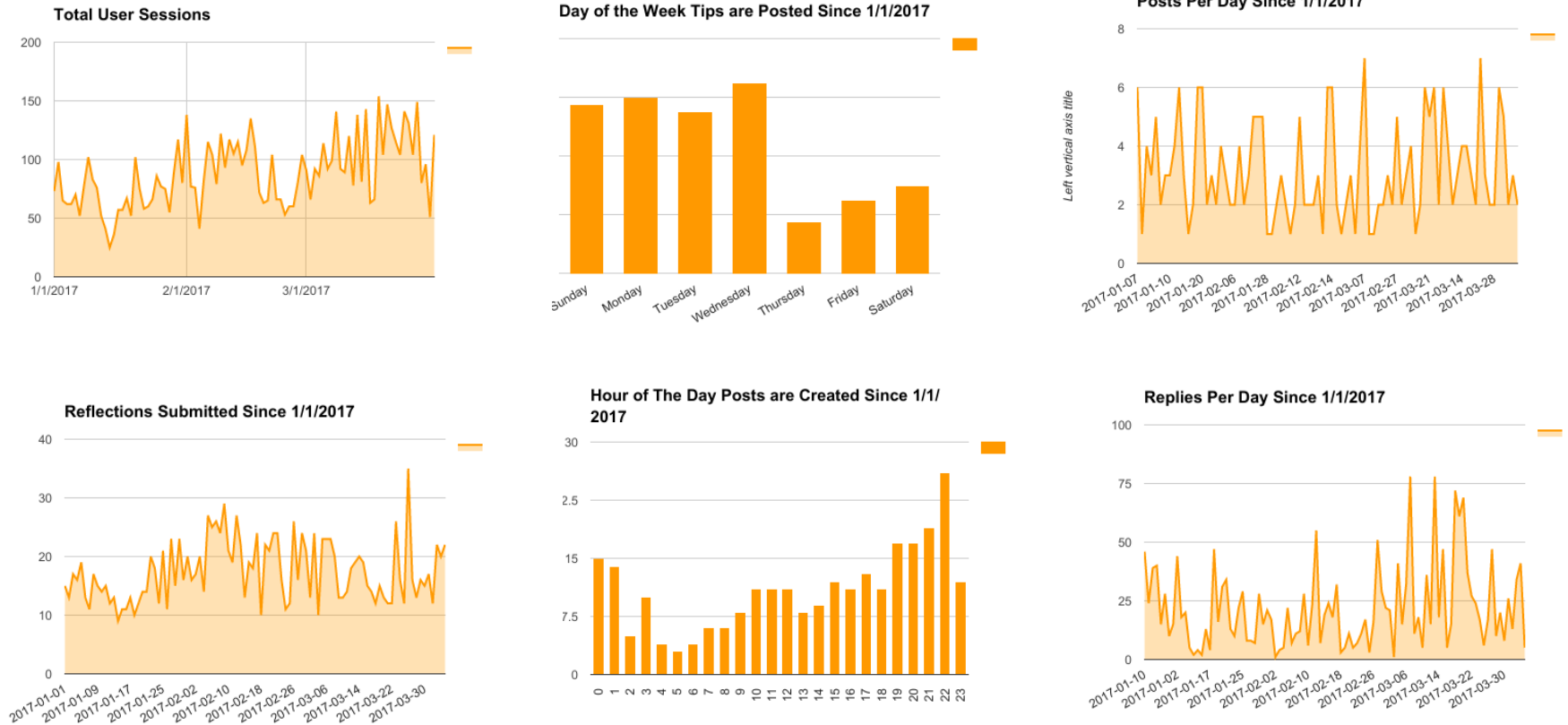
Marbles Utilization Metrics: Demographics

Of the 1,500+ users, the median age is 24 and users come from a relatively diverse background.



Marbles Utilization Metrics: Activity

In-app activity increases as users typically reach out for support during the evening and early in the week.



Data Visualization

The online data visualization tool helps us examine the real-time trends in mental and emotional health for different populations of users.

- Data visualization - <http://marbles-server-prod.herokuapp.com/login/auth>
- Private vs. public schools - <https://medium.com/@thatMHG/whats-happens-to-student-mental-health-over-the-summer-a51eff921ffb>

Next Steps

We are going to expand research efforts to continue exploring ways to use technology to support student mental health and service delivery.

- Continue current study:

- Finish next 4 data collection efforts
- Analyze results
- Review if findings are significant for publication

- Seek funding for two additional studies:

- Analyze current Reflection results using growth mixture modeling to determine groups experiencing similar behavior
- Build an algorithm using natural language processing to understand people are Posting about and identify posts that express intent to commit suicide
 - Build referral & escalation methodology using Marbles to triage people into the right level of mental health services

- Identify additional study and/or pilot sites

- Explore app customization to make it relevant for various groups of users

- Continue to build a comprehensive technology solution to help colleges address the mental health crisis and eliminate collegiate suicide

Any Questions??

Adam Moen

651.329.4375

moenx200@umn.edu

Download Marbles at

www.livebeyondthelabel.com